

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed May 26, 2004. Claims 15 – 28 remain pending in the application. The Office Action tentatively rejected all claims. Specifically, the Office Action rejected claims 15-17, 19-21, and 24-27 as allegedly unpatentable over the combination of U.S. Patent 5,924,111 to Huang (hereafter “Huang”) in view of U.S. Patent 6,249,449 to Yoneda (hereafter “Yoneda”), in further view of U.S. Patent 6,067,382 to Maeda (hereafter “Maeda”). The Office Action also rejected claims 18, 22-23, and 28 as allegedly unpatentable over the combination of Huang, Yoneda, and Maeda, in further view of U.S. Patent 5,544,306 to Deering (hereafter “Deering”). Applicants disagree for at least the reasons set forth below, and respectfully requests reconsideration and withdrawal of the rejections.

Discussion of Rejections

Applicants submit that the rejections are misplaced and should be withdrawn for multiple, independent reasons. Even if the cited art was properly combined, the combination fails to disclose or suggest all claimed features of the independent claims. For at least this reason the independent claim, and therefore, all claims define over the applied art. As a separate and independent basis for the patentability of the pending claims, the alleged combination of the cited references is misplaced insofar as there is no proper motivation or suggestion for combining the references. Each of these independent bases for patentability will be discussed below.

The Office Action (§ 5) rejected independent claims 15, 20, 21, and 24 as allegedly unpatentable over a selective combination of features from Huang in view of Yoneda in further view of Maeda. For at least the reasons set forth below, Applicants disagree.

As set forth in a previous response, Applicants note that independent claims 15, 20, 21 and 24 each contain the features/limitations/elements of subdividing a memory region into a plurality of sub-regions and concurrently writing clear data to each of the plurality of sub-regions. Specifically, independent claim 15 is directed to a method for writing clear data to a frame buffer of a graphics display device. The method of claim 15 recites “subdividing said memory region into a plurality of sub-regions” and “writing said clear data concurrently to each of said plurality of sub-regions.” Independent claim 20 is directed to a computer-readable medium having a program for clearing data residing in a region of a frame buffer” The program recites logic configured to “subdivide said memory region into a plurality of sub-regions” and “write said clear data concurrently to each of said plurality of sub-regions.” Independent claims 21 is directed to a system which recites “means for subdividing said memory region into a plurality of sub-regions” and “means for writing said clear data concurrently to each of said plurality of sub-regions.” Furthermore, new independent claim 24 is directed to a graphics system, which recites logic configured to “subdivide the region of the frame buffer into a plurality of sub-regions” and “concurrently write clear data to each of the plurality of sub-regions.”

Applicants respectfully submit that none of the cited references discloses, teaches, or otherwise suggests these claimed features. For at least this reason, the combination of the cited references fails to disclose these features and the rejections should be withdrawn.

Turning now to each independent claim individually: claim 15 recites:

15. A method for writing clear data to a frame buffer of a graphics display device, comprising:

determining a dimension and a position of at least one image displayed on said graphics display device, wherein said at least one image is to be cleared;

determining a location of a region of memory where a plurality of data having at least pixel information associated with a plurality of pixels which display said at least one image is stored;

subdividing said memory region into a plurality of sub-regions; and writing said clear data concurrently to each of said plurality of sub-regions.

(*Emphasis added.*) Independent claim 15 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above.

The Office Action has alleged that Huang discloses “a method for writing clear data into a frame buffer of a graphics display device comprising: memory region subdivided into a plurality of sub-regions (Fig. 5, Item No. 134)...” Applicants respectfully disagree. First, Huang does not disclose a method for writing clear data into a frame buffer at all. Instead, Huang is directed to a method and apparatus for interleaving data in multiple memory bank partitions. The element cited by the Office Action (ref. num. 134) is merely a frame buffer comprised of multiple RAM components that are interleaved. This teaching fails to disclose what Applicants have claimed in claim 15.

In this regard, Applicants submit that Huang does not disclose ***subdividing a region of memory into a plurality of sub-regions***. Huang discloses nothing about the feature of subdividing memory for ANY purpose; the mere existence interleaved RAM components does not satisfy this claimed feature, and for at least this reason the rejection is misplaced.

Applicants note that the frame buffer 134 of Huang comprises a number of memory devices, such as VRAMs 210, 220, 230, which are required because of the large amount of pixel data to be stored to achieve a desired resolution for the display screen. As stated in Huang:

“[I]t is desirable to provide a frame buffer for storing pixel data for a 1024x768 display screen resolution. Illustratively, 1 Mbyte (1,048,576 byte) VRAMs are used and each pixel is represented by 32 bit data. Using a linear addressing scheme, only three 1 Mbyte VRAMs 210, 220 and 230 are necessary to store the pixel data.” Col 8, ll. 46 – 53.

In other words, the memory devices comprise the frame buffer. Applicants note that Huang does not disclose subdividing the memory region into a plurality of sub-regions. The system of Huang does not include any functionality or structure that subdivides the memory into a plurality of sub-regions (for any reason, much less for the purpose of clearing data stored in the memory, as recited in the preamble of claim 15).

Furthermore, because Huang fails to disclose, teach, or suggest subdividing the memory region to be cleared into a plurality of sub-regions, Huang CANNOT disclose, teach, or suggest concurrently writing clear data to the sub-regions. Indeed, the Office Action admits that Huang does not disclose this latter feature. Applicants respectfully submit that the graphics system of Huang does NOT include any component, which “subdivides a region of the frame buffer into a plurality of sub-regions” and “concurrently writes clear data to each of the plurality of sub-regions.” The memory devices of Huang are merely individual memory devices that store pixel data (in an interleaved fashion) for the frame buffer. Huang wholly fails to disclose anything related to subdividing a region of the frame buffer 134 to be cleared, as defined by claim 15.

For at least this reason (*i.e.*, the misplaced application of Huang), claim 15 patently defines over the combination of Huang with Yoneda and Maeda, even if these references were properly combined.

In addition, the Office Action admitted that Huang does not disclose the writing of clear data concurrently to each one of the plurality of sub-regions. However, the Office Action has cited Yoneda as allegedly disclosing “an associative memory block that is divided into a plurality of associative memory subblocks, wherein the contents of the memory are erased when writing new data to the memory (col. 2, lines 58-64).” This alleged teaching,

however, (even if true) does not teach what Applicants have actually claimed in claim 15.

The cited portion of Yoneda actually states:

In an apparatus using an associative memory, on the other hand, the operation of updating the contents of a memory word is frequently performed by, for example, holding the contents of a plurality of memory words matching with retrieval data as a result of match retrieval and sequentially writing new data to the memory words that have been erased after the content of a memory word mismatching with retrieval data are erased in order to improve the use efficiency of each memory word of the associative memory.

As can be readily verified from even a cursory review of the above-quoted teaching from Yoneda, it can be confirmed that this teaching of Yoneda does not disclosed the claimed feature that the Office Action has applied it to: namely the writing of clear data concurrently into each of a plurality of subregions of a frame buffer. Even more fundamentally, Yoneda has nothing whatsoever to do with graphics systems (much less the writing of clear data to a frame buffer memory). In contrast, Yoneda is directed to a hierarchical encoder for a content addressable memory. Although Yoneda appears to disclose an associative memory, it does not disclose the claimed features of subdividing a memory into subregions, or the writing of clear data into the subregions concurrently.

For at least this additional reason, the combination of Huang, Yoneda, and Maeda (again, assuming *arguendo* that the combination is proper) fails to disclose the claimed features of claim 15, and the rejection should be withdrawn.

As yet a further reason why the application of Huang, Yoneda, and Maeda is misplaced, the Office Action admitted that the combination of Huang and Yoneda fails to disclose a processor to determine dimension and a position of at least one image on said graphic display device, wherein said at least one image is to be cleared.” (citing col. 24, lines 34-35; col. 29, lines 10-15; lines 23-40 and col. 32, lines 58-65). Applicants respectfully disagree.

The cited portions of Maeda disclose the clearing of a frame buffer memory (a teaching which Applicants acknowledged to be prior art). Significantly, however, Maeda does not disclose the claimed features of “determining a dimension and a position of at least one image displayed on said graphics display device, wherein said at least one image is to be cleared” and “determining a location of a region of memory where a plurality of data having at least pixel information associated a plurality of pixels which display said at least one image is stored.” Simply stated, Maeda fails to disclose the claimed features that the Office Action alleged it to disclose.

For at least this additional reason, the rejection based on the combination of Huang, Yoneda, and Maeda should be withdrawn.

As a separate and independent basis for traversing the rejection of claim 15, the Office Action has improperly combined select teachings of Huang with Yoneda and Maeda. In this regard, Applicants respectfully submit that this rejection falls far short of the legal requirements for forming rejections under 35 U.S.C. § 103(a). In this regard, it is well-settled law that in order to properly support an obviousness rejection under 35 U.S.C. § 103, there must have been some teaching in the prior art to suggest to one skilled in the art that the claimed invention would have been obvious. W. L. Gore & Associates, Inc. v. Garlock Thomas, Inc., 721 F.2d 1540, 1551 (Fed. Cir. 1983). More significantly,

"The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this [invention] should be carried out and would have a reasonable likelihood of success, viewed in light of the prior art. ..." Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure... In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill

in the art is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention."

(Emphasis added) In re Dow Chemical Company, 837 F.2d 469, 473 (Fed. Cir. 1988).

In this regard, Applicants note that there must not only be a suggestion to combine the functional or operational aspects of the combined references, but that the Federal Circuit also requires the prior art to suggest both the combination of elements and the structure resulting from the combination. Stiftung v. Renishaw PLC, 945 Fed.2d 1173 (Fed. Cir. 1991).

Therefore, in order to sustain an obviousness rejection based upon a combination of any two or more prior art references, the prior art must properly suggest the desirability of combining the particular elements to create method or apparatus for writing clear data into a frame buffer as defined by the pending claims.

When an obviousness determination is based on multiple prior art references, there must be a showing of some "teaching, suggestion, or reason" to combine the references. Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) (also noting that the "absence of such a suggestion to combine is dispositive in an obviousness determination").

Evidence of a suggestion, teaching, or motivation to combine prior art references may flow, inter alia, from the references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. See In re Dembiczak, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Although a reference need not expressly teach that the disclosure contained therein should be combined with another, the showing of combinability, in whatever form, must nevertheless be "clear and particular." Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617.

If there was no motivation or suggestion to combine selective teachings from multiple prior art references, one of ordinary skill in the art would not have viewed the present

invention as obvious. See In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); Gambro Lundia AB, 110 F.3d at 1579, 42 USPQ2d at 1383 (“The absence of such a suggestion to combine is dispositive in an obviousness determination.”).

Significantly, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. Winner Int'l Royalty Corp. v. Wang, No 98-1553 (Fed. Cir. January 27, 2000). The Office Action has failed to cite any apparent disadvantage of Ladd, which would prompt the combination of select teachings of Baker therewith.

With regard to claim 15 (as well as claims 20, 21, and 24), the Office Action merely alleged that

[I]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to have utilized the controller taught by Yoneda et al into the system of Huang et al ***because doing so would provide an associative memory which is required to process large capacity data at high speed*** and comprises a plurality of associative memory subblocks, and is also capable of not only managing an invalid memory word whose contents have been erased but also efficiently encoding its address.

(*Emphasis added.*) With regard to the further combination of Maeda, the Office Action alleged that:

[I]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the cited references ***because doing so would provide a system being able to identify the position and the location of the data within the sub-regions so that such data may be appropriately processed by the graphics system.***

(*Emphasis added.*)

Significantly, Yoneda was applied by the Office Action for its alleged application of concurrently writing data into a plurality of subregions (alleging that such a teaching applied to the clear operation of the claimed invention). However, the rationale articulated by the

Office Action for combining Yoneda with Huang has nothing whatsoever to do with such an operation. As noted above, the legal precedent established by the Federal Circuit requires that there be a proper motivation or suggestion to combine the selective features of the various references, and not merely some tenuous reason for combining the two references globally.

The further combination of Maeda is even further removed. Using the rationale apparently adopted by the Office Action in combining Maeda with Yoneda and Huang, any patent claims submitted to the PTO for examination could be rejected (which is clearly misplaced and improper). In this regard, it has long been stated as axiomatic that a patent claim is merely a novel combination of known elements. Further, every patent claim, by definition, defines a method or apparatus that has utility. Using the rationale embodied in this rejection, the Patent Office could reject every proposed patent claim submitted for examination by reciting the utility of the claim as providing the alleged motivation or suggestion for combining the otherwise individually-known elements. The well-established legal precedence of the Federal Circuit (summarized above) makes it clear that such rejections are improper.

For at least the foregoing, independent reasons, the rejection of independent claim 15 is misplaced and should be withdrawn.

With regard to independent claims 20, 21, and 24, each of these claims is of differing scope than claim 15. However, each have elements that loosely correspond to elements of claim 15. For purposes of this response, since the Office Action rejected each of these claims in a single paragraph and upon the same basis as claim 15, Applicants hereby submit that the rejections of these independent claims should be withdrawn for at least the same reasons discussed above in connection with claim 15.

Dependent Claims

Claims 16-19, 22-23 and 25-28 each depend from claims 15, 21, and 24, respectively. The rejections of these claims should be withdrawn for at least the same reasons discussed above, in connection with the independent claims from which they depend.

Further, with regard to dependent claims 18, 22-23, and 28, the Office Action rejected these claims as allegedly obvious over the combination of Huang, Yoneda, Maeda, and in further view of Deering. Applicants respectfully submit that this rejection is misplaced. The relevant Federal Circuit precedent has been recited above. The rationale espoused by the Office Action were merely that the combination of Deering would have been obvious “because doing so would provide a system being able to identify the data within the sub-regions so that such data may be appropriately processed by the graphics systems.” (Office Action, ¶ 9). Such a rejection embodies clear hindsight reasoning. No weakness, deficiency, or disadvantage was noted in the prior art for leading to such a combination. Instead, the combination was advanced with the advantage and utility of Applicants’ claimed invention clearly in mind. As such the rejection is improper and should be withdrawn.



CONCLUSION

Applicants respectfully submit that all claims are now in proper condition for allowance, and respectfully request that the Examiner pass this case to issuance. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this Amendment and Response to Office Action. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to Hewlett-Packard Company's Deposit Account No. 08-2025.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Daniel R. McClure", written over a horizontal line.

Daniel R. McClure
Registration No. 38,962
(770) 933-9500

Please continue to send all future correspondence to:

Hewlett-Packard Development Company, L.P.
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400